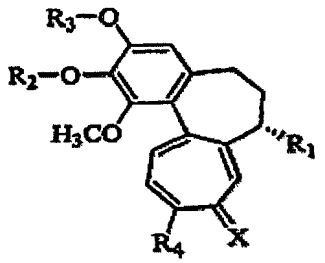
What is claimed is

1. A tricyclic derivative represented by the following <Formula 1> or pharmaceutically acceptable salts thereof.

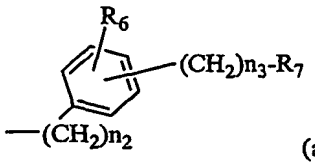
<Formula 1>

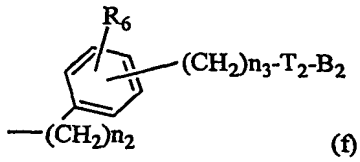


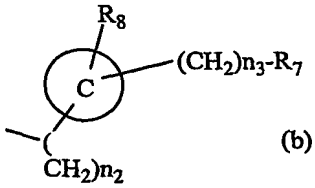
(Wherein,

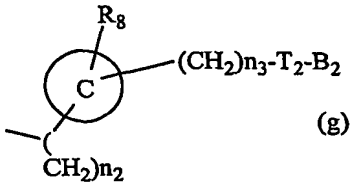
(1) R_1 is $-T_1-B_1$;

in which T_1 is $-X_1-$, $-X_1-C(X_2)-$, $-N(R_5)-$, $-N(R_5)C(X_2)-$, $-N(R_5)S(O)n_1-$, $-N(R_5)C(O)-X_1-$ or $-N(R_5)C(X_1)NH-$, in that X_1 and X_2 are each O or S, R_5 is each H or C_1~C_5 alkyl group, n_1 is an integer of 1~2; and B_1 is selected from a group consisting of following (a)~(j),

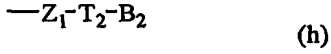

(a)

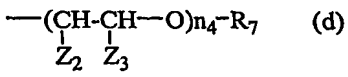

(f)


(b)


(g)


(c)


(h)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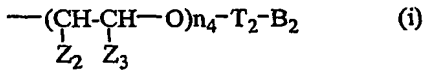
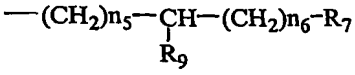
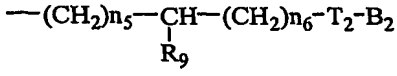
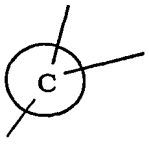
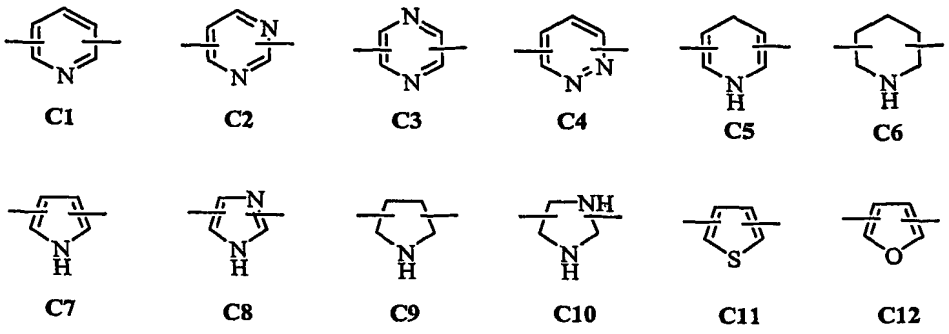

(i)


(e)


(j)

Wherein, R_6 and R_8 are each H, halogen, hydroxy, C_1~C_3 alkoxy, amino, nitro, cyano or C_1~C_3 lower alkyl group; R_7 and R_9 are each independently halogen, hydroxy, mercapto, -ONO, $-ONO_2$ or SNO, in which R_7 and R_9 are same or different;


is C_5~C_6 membered saturated or unsaturated heterocyclic ring containing 1~2 of hetero atom, in which the hetero atom is selected from a group consisting of O, S and N, preferably,



more preferably, C1 (pyridyl group) substituted at position 2 and 6 or position 2 and 5, C7 (pyrrolyl group) substituted at position 2 and 5 or position 2 and 4, C11 (thiophenyl group) or C12 (furanyl group); Z_1 is C_1~C_{10} straight-chain or branched-chain alkyl group, preferably C_2~C_5 straight-chain or branched-chain alkyl group or cycloalkyl group having substituent; Z_2 and Z_3 are each independently H or methyl group, in which Z_3 is H when Z_2 is methyl group, Z_2 is H when Z_3 is methyl group; T_2 is $-X_1-$ or $-X_1-C(X_2)-$, in that X_1 and X_2 are each independently O or S; B_2 is selected from a group consisting of said (a), (b), (c), (d) or (e); n_2 is an integer of 0~3, n_3 is an integer of 0~5, n_4 is an integer of 1~5, n_5 and n_6 are each independently an integer of 1~6;

(2) R_2 and R_3 are each independently H, $-PO_3H_2$, phosphonate, sulfate, C_3~C_7 cycloalkyl, C_2~C_7 alkenyl, C_2~C_7 alkynyl, C_1~C_7 alkanoyl, C_1~C_7 straight-chain or branched-chain alkyl or sugar, in which sugar is a

monosaccharide such as glucuronyl, glucosyl or galactosyl;

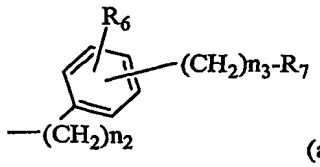
(3) R_4 is OCH_3, SCH_3 or $NR_{10}R_{11}$, in which R_{10} and R_{11} are each independently H or $C_{1\sim5}$ alkyl;

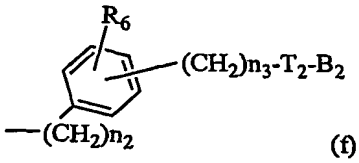
(4) X is O or S.)

2. The tricyclic derivative or pharmaceutically acceptable salts thereof as set forth in claim 1, wherein the compound of <Formula 1> is characterized as follows:

(1) R_1 is $-T_1-B_1$;

in which T_1 is $-N(R_5)C(X_2)-$, $-N(R_5)C(O)-X_1-$ or $-N(R_5)C(X_1)NH-$, in that X_1 and X_2 are each O, R_5 is each H or $C_1 \sim C_5$ alkyl group; and B_1 is selected from a group consisting of following (a) ~ (j),


(a)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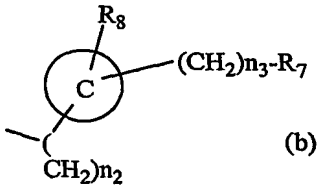
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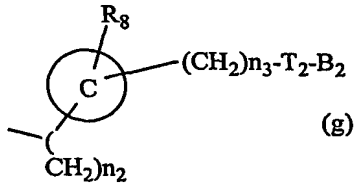
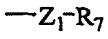
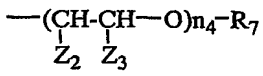
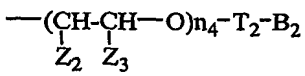
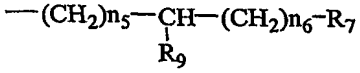

(g)

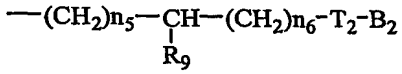

(c)

(h)

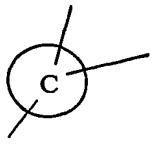

(d)

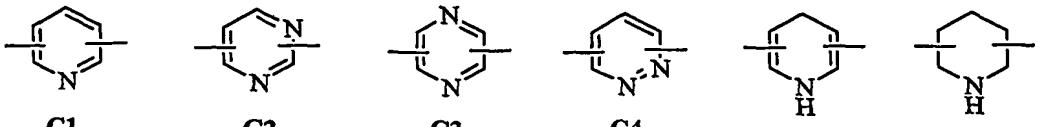

(i)

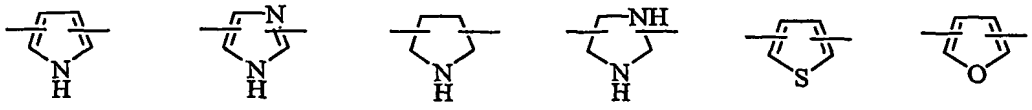

(e)


(j)

Wherein, R_6 and R_8 are each H, halogen, hydroxy, C_1~C_3 alkoxy, amino, nitro, cyano or C_1~C_3 lower alkyl group; R_7 and R_9 are each independently halogen, hydroxy, mercapto(thiol), -ONO, $-ONO_2$ or SNO, in which R_7 and R_9 are same or different;


is C_5~C_6 membered saturated or unsaturated heterocyclic ring containing 1~2 of hetero atom, in which the hetero atom is selected from a group consisting of O, S and N, preferably,


C1 C2 C3 C4 C5 C6


C7 C8 C9 C10 C11 C12 ,

more preferably, C1 (pyridyl group) substituted at position 2 and 6 or position 2 and 5, C7 (pyrrolyl group) substituted at position 2 and 5 or position 2 and 4, C11 (thiophenyl group) or C12 (furanyl group), a bond of substituents may be at symmetrical or asymmetrical position; Z_1 is C_1~C_{10} straight-chain or branched-chain alkyl group, preferably C_2~C_5 straight-chain or branched-chain alkyl group or cycloalkyl group having substituent; Z_2 and Z_3 are each independently H or methyl group, in which Z_3 is H when Z_2 is methyl group, Z_2 is H when Z_3 is methyl group; T_2 is $-X_1-$ or $-X_1-C(X_2)-$, in that X_1 and X_2 are each O or S; B_2 is selected from a group consisting of said (a), (b), (c), (d) or (e); n_2 is an integer of 0~3, n_3 is an integer of 0~5, n_4 is an integer of 1~3, n_5 and n_6 are each independently an integer of 1~3;

(2) R_2 and R_3 are each independently C_3~C_7 cycloalkyl or C_1~C_7 alkyl;

(3) R_4 is SCH_3 or OCH_3;

(4) X is O or S.

3. The tricyclic derivative or pharmaceutically acceptable salts thereof as set forth in claim 1, wherein the tricyclic derivative comprises:

1) 6-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen -7-yl]-nicotineamide;

2) 5-nitrooxymethyl-furan-2-carboxylic acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

3) N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methyl-sulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;

4) N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methyl-sulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;

5) 6-nitrooxymethyl-pyridine-2-carboxylic acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

6) 5-nitrooxymethyl-thiophene-2-carboxylic acid-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

7) N-[(7S)-3-cyclopentyloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen -7-yl]-3-nitrooxymethyl-benzamide;

8) N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-2-fluoro-3-nitrooxymethyl-benzamide;

9) 2-fluoro-N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-nitrooxymethyl-benzamide;

10) 2-fluoro-3-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

11) N-[(7S)-3-cyclopentyloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-2-fluoro-3-nitrooxymethyl-benzamide;

12) 3-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

13) N-[(7S)-3-ethoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-fluoro-5-nitrooxymethyl-benzamide;

14) 3-fluoro-N-[(7S)-3-isopropoxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-5-nitrooxymethyl-benzamide;

15) N-[(7S)-3-cyclopentyloxy-1,2-dimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-3-fluoro-5-nitrooxymethyl-benzamide;

16) 4-fluoro-3-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

17) 2-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

18) 3-hydroxy-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

19) 3,5-*bis*-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

20) 2-hydroxy-4-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

21) 4-nitrooxymethyl-thiophene-2-carboxylic acid [(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

22) 3-nitrooxymethyl-thiophene-2-carboxylic acid [(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-amide;

23) 2-(3-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide;

24) 3-(2-nitrooxy-ethyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

25) 3-nitrooxybenzoic acid-5-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

26) 4-nitrooxybutyric acid-5-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

27) 3-nitrooxymethyl-benzoic acid-6-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

28) 4-nitrooxybutyric acid-6-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-pyridine-2-yl-methylester;

29) 3-nitrooxymethyl-benzoic acid-2-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

30) 4-nitrooxybutyric acid-2-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

31) 3-nitrooxymethyl-benzoic acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

32) 4-nitrooxybutyric acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-phenylester;

33) 3-nitrooxymethyl-benzoic acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-benzylester;

34) 4-nitrooxybutyric acid-3-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl-carbamoyl]-benzylester;

35) 2-nitrosothio-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

36) 3-nitrosooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

37) 3-fluoro-5-nitrosooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

38) 3-nitrosothiomethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

39) 3-fluoro-5-nitrosothiomethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

40) 3-fluoro-5-nitrooxymethyl-N-[(7S)-1,2,3,10-tetramethoxy-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

41) 3-nitrooxymethyl-N-methyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

42) 3-fluoro-N-methyl-5-nitrooxymethyl-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-benzamide;

43) 2-(3-fluoro-5-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide; or

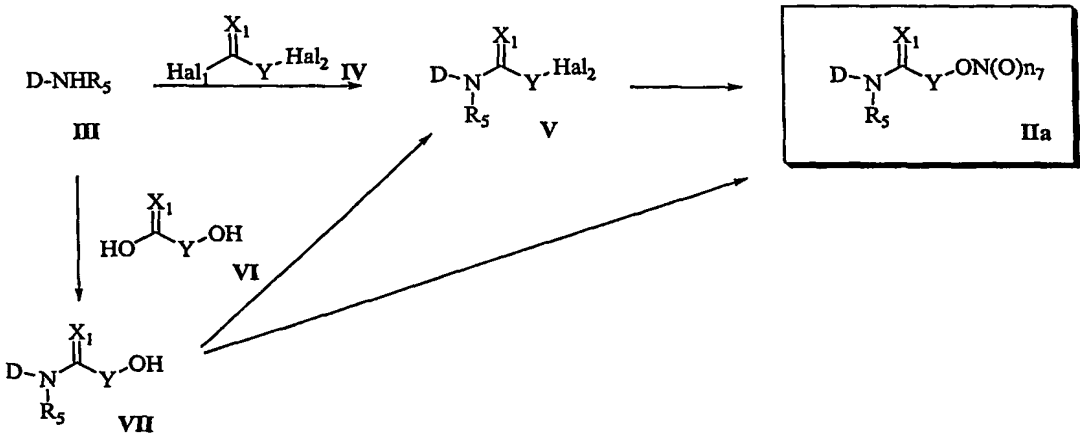
44) 2-(2-fluoro-5-nitrooxymethyl-phenyl)-N-[(7S)-1,2,3-trimethoxy-10-methylsulfanyl-9-oxo-5,6,7,9-tetrahydro-benzo[a]heptalen-7-yl]-acetamide.

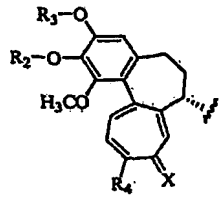
4. A method for preparing tricyclic derivatives as represented in <Scheme 1> comprising the following steps:

(1) Reaction of the compound of formula (III) with the compound formula (IV) or the compound of formula (VI) is performed to give the compound of formula (V) or the compound of formula (VII), or reaction of the resultant compound of formula (VII) with the halogen compound is performed to give the compound of formula (V) (Step 1); and

(2) Nitration or nitrosation of the prepared compound of formula (V) or the compound of formula (VII) is performed to give the compound of formula (IIa) (Step 2).

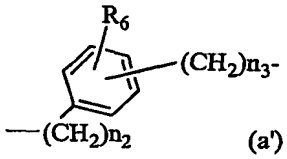
<Scheme 1>



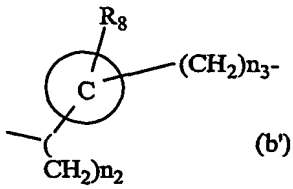


(Wherein, D is , and R_2, R_3, R_4 and X are same as defined in the <Formula 1>;

R_5 is H or low molecular weight alkyl; X_1 is O or S; Hal_1 and Hal_2 are halogens; Hal_1 and Hal_2 of general formula (IV) and (IX) are each same or different halogens, for example F, Cl, Br or I; Y indicates general formula (a'), (b'), (c'), (d') and (e') respectively,

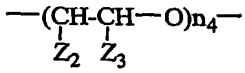


(a')

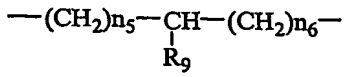


(b')

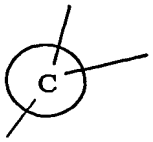
(c')



(d')



(e')

Wherein,  , R_6, R_8, R_9, Z_1, Z_2, Z_3, n_2, n_3, n_4, n_5 and n_6 are same as defined in the <Formula 1>.)

5. An anticancer agent or anti-proliferation agent containing tricyclic derivatives of any one of claim 1 - claim 3 or pharmaceutically acceptable salts thereof as an effective ingredient.

6. An angiogenesis inhibitor containing tricyclic derivatives of any one of claim 1 - claim 3 or pharmaceutically acceptable salts thereof as an effective ingredient.